SEQUENCE LISTING

<110> Rosanne M. Crooke
Mark J. Graham

<120> ANTISENSE MODULATION OF STEAROYL-COA DESATURASE EXPRESSION

<130> ISPH-0590US.P1

<150> US 09/918,187
<151> 2001-07-30

<160> 418

<210> 1
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 1
tccgtcatcg ctcctcaggg 20

<210> 2
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 2
atgcattctg cccccaagga 20

<210> 3
<211> 5221
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (236)...(1315)

<400> 3
ataaaagggg gctgaggaaa taccggacac ggtcacccgt tgccagctct agcctttaaa 60
ttcccggctc ggggacctcc acgcaccgcg gctagcgccg acaaccagct agcgtgcaag 120
gcgccgcggc tcagcgcgta ccggcgggct tcgaaaccgc agtcctccgg cgaccccgaa 180
ctccgctccg gagcctcagc cccctggaaa gtgatcccgg catccgagag ccaag atg 238
Met
1

ccg gcc cac ttg ctg cag gac gat atc tct agc tcc tat acc acc acc 286
Pro Ala His Leu Leu Gln Asp Asp Ile Ser Ser Ser Tyr Thr Thr Thr
5 10 15

acc acc att aca gcg cct ccc tcc agg gtc ctg cag aat gga gga gat 334
Thr Thr Ile Thr Ala Pro Pro Ser Arg Val Leu Gln Asn Gly Gly Asp
20 25 30

aag ttg gag acg atg ccc ctc tac ttg gaa gac gac att cgc cct gat 382
Lys Leu Glu Thr Met Pro Leu Tyr Leu Glu Asp Asp Ile Arg Pro Asp
35 40 45

ata aaa gat gat ata tat gac ccc acc tac aag gat aag gaa ggc cca 430
Ile Lys Asp Asp Ile Tyr Asp Pro Thr Tyr Lys Asp Lys Glu Gly Pro
50 55 60 65

agc ccc aag gtt gaa tat gtc tgg aga aac atc atc ctt atg tct ctg 478
Ser Pro Lys Val Glu Tyr Val Trp Arg Asn Ile Ile Leu Met Ser Leu
70 75 80

cta cac ttg gga gcc ctg tat ggg atc act ttg att cct acc tgc aag 526
Leu His Leu Gly Ala Leu Tyr Gly Ile Thr Leu Ile Pro Thr Cys Lys
85 90 95

ttc tac acc tgg ctt tgg ggg gta ttc tac tat ttt gtc agt gcc ctg 574
Phe Tyr Thr Trp Leu Trp Gly Val Phe Tyr Tyr Phe Val Ser Ala Leu
100 105 110

```
ggc ata aca gca gga gct cat cgt ctg tgg agc cac cgc tct tac aaa   622
Gly Ile Thr Ala Gly Ala His Arg Leu Trp Ser His Arg Ser Tyr Lys
    115                 120                 125

gct cgg ctg ccc cta cgg ctc ttt ctg atc att gcc aac aca atg gca   670
Ala Arg Leu Pro Leu Arg Leu Phe Leu Ile Ile Ala Asn Thr Met Ala
130                 135                 140                 145

ttc cag aat gat gtc tat gaa tgg gct cgt gac cac cgt gcc cac cac   718
Phe Gln Asn Asp Val Tyr Glu Trp Ala Arg Asp His Arg Ala His His
                150                 155                 160

aag ttt tca gaa aca cat gct gat cct cat aat tcc cga cgt ggc ttt   766
Lys Phe Ser Glu Thr His Ala Asp Pro His Asn Ser Arg Arg Gly Phe
            165                 170                 175

ttc ttc tct cac gtg ggt tgg ctg ctt gtg cgc aaa cac cca gct gtc   814
Phe Phe Ser His Val Gly Trp Leu Leu Val Arg Lys His Pro Ala Val
        180                 185                 190

aaa gag aag ggg agt acg cta gac ttg tct gac cta gaa gct gag aaa   862
Lys Glu Lys Gly Ser Thr Leu Asp Leu Ser Asp Leu Glu Ala Glu Lys
    195                 200                 205

ctg gtg atg ttc cag agg agg tac tac aaa cct ggc ttg ctg ctg atg   910
Leu Val Met Phe Gln Arg Arg Tyr Tyr Lys Pro Gly Leu Leu Leu Met
210                 215                 220                 225

tgc ttc atc ctg ccc acg ctt gtg ccc tgg tat ttc tgg ggt gaa act   958
Cys Phe Ile Leu Pro Thr Leu Val Pro Trp Tyr Phe Trp Gly Glu Thr
                230                 235                 240

ttt caa aac agt gtg ttc gtt gcc act ttc ttg cga tat gct gtg gtg   1006
Phe Gln Asn Ser Val Phe Val Ala Thr Phe Leu Arg Tyr Ala Val Val
            245                 250                 255

ctt aat gcc acc tgg ctg gtg aac agt gct gcc cac ctc ttc gga tat   1054
Leu Asn Ala Thr Trp Leu Val Asn Ser Ala Ala His Leu Phe Gly Tyr
```

```
        260                 265                 270

cgt cct tat gac aag aac att agc ccc cgg gag aat atc ctg gtt tca   1102
Arg Pro Tyr Asp Lys Asn Ile Ser Pro Arg Glu Asn Ile Leu Val Ser
    275                 280                 285

ctt gga gct gtg ggt gag ggc ttc cac aac tac cac cac tcc ttt ccc   1150
Leu Gly Ala Val Gly Glu Gly Phe His Asn Tyr His His Ser Phe Pro
290                 295                 300                 305

tat gac tac tct gcc agt gag tac cgc tgg cac atc aac ttc acc aca   1198
Tyr Asp Tyr Ser Ala Ser Glu Tyr Arg Trp His Ile Asn Phe Thr Thr
                310                 315                 320

ttc ttc att gat tgc atg gcc gcc ctc ggt ctg gcc tat gac cgg aag   1246
Phe Phe Ile Asp Cys Met Ala Ala Leu Gly Leu Ala Tyr Asp Arg Lys
            325                 330                 335

aaa gtc tcc aag gcc gcc atc ttg gcc agg att aaa aga acc gga gat   1294
Lys Val Ser Lys Ala Ala Ile Leu Ala Arg Ile Lys Arg Thr Gly Asp
        340                 345                 350

gga aac tac aag agt ggc tga gtttggggtc cctcaggttt ccttttcaa      1345
Gly Asn Tyr Lys Ser Gly  *
    355

aaaccagcca ggcagaggtt ttaatgtctg tttattaact actgaataat gctaccagga 1405
tgctaaagat gatgatgtta acccattcca gtacagtatt cttttaaaat tcaaaagtat 1465
tgaaagccaa caactctgcc tttatgatgc taagctgata ttatttcttc tcttatcctc 1525
tctctcttct aggcccattg tcctcctttt cactttattg ctatcgccct cctttccctt 1585
attgcctccc aggcaagcag ctggtcagtc tttgctcagt gtccagcttc caaagcctag 1645
acaacctttc tgtagcctaa aacgaatggt ctttgctcca gataactctc tttccttgag 1705
ctgttgtgag ctttgaagta ggtggcttga gctagagata aaacagaatc ttctgggtag 1765
tcccctgttg attatcttca gcccaggctt ttgctagatg gaatggaaaa gcaacttcat 1825
ttgacacaaa gcttctaaag caggtaaatt gtcgggggag agagttagca tgtatgaatg 1885
taaggatgag ggaagcgaag caagaggaac ctctcgccat gatcagacat acagctgcct 1945
acctaatgag gacttcaagc cccaccacat agcatgcttc ctttctctcc tggctcgggg 2005
taaaaagtgg ctgcggtgtt tggcaatgct aattcaatgc cgcaacatat agttgaggcc 2065
gaggataaag aaaagacatt ttaagtttgt agtaaaagtg gtctctgctg gggaagggtt 2125
```

ttcttttctt tttttcttta ataacaagga gatttcttag ttcatatatc aagaagtctt 2185
gaagttgggt gtttccagaa ttggtaaaaa cagcagctca tggaattttg agtattccat 2245
gagctgctca ttacagttct ttcctctttc tgctctgcca tcttcaggat attggttctt 2305
cccctcatag taataagatg gctgtggcat ttccaaacat ccaaaaaaag ggaaggattt 2365
aaggaggtga agtcgggtca aaaataaaat atatatacat atatacattg cttagaacgt 2425
taaactatta gagtatttcc cttccaaaga gggatgtttg gaaaaaactc tgaaggagag 2485
gaggaattag ttgggatgcc aatttcctct ccactgctgg acatgagatg gagaggctga 2545
gggacaggat ctataggcag cttctaagag cgaacttcac ataggaaggg atctgagaac 2605
acgttgccag gggcttgaga aggttactga gtgagttatt gggagtctta ataaaataaa 2665
ctagatatta ggtccattca ttaattagtt ccagtttctc cttgaaatga gtaaaaacta 2725
gaaggcttct ctccacagtg ttgtgcccct tcactcattt ttttttgagg agaaggggtg 2785
ctctgttaac atctagccta aagtatacaa ctgcctgggg ggcagggtta ggaatctctt 2845
cactaccctg attcttgatt cctggctcta ccctgtctgt ccctttttctt tgaccagatc 2905
tttctcttcc ctgaacgttt tcttctttcc ctggacaggc agcctccttt gtgtgtattc 2965
agaggcagtg atgacttgct gtccaggcag ctccctcctg cacacagaat gctcagggtc 3025
actgaaccac tgcttctctt ttgaaagtag agctagctgc cactttcacg tggcctccgc 3085
agtgtctcca cctacacccc tgtgctcccc tgccacactg atggctcaag acaaggctgg 3145
caaaccctcc cagaaacatc tctggcccag aaagcctctc tctccctccc tctctcatga 3205
ggcacagcca agccaagcgc tcatgttgag ccagtgggcc agccacagag caaaagaggg 3265
tttattttca gtcccctctc tctgggtcag aaccagaggg catgctgaat gccccctgct 3325
tacttggtga gggtgccccg cctgagtcag tgctctcagc tggcagtgca atgcttgtag 3385
aagtaggagg aaacagttct cactgggaag aagcaagggc aagaacccaa gtgcctcacc 3445
tcgaaaggag gccctgttcc ctggagtcag ggtgaactgc aaagctttgg ctgagacctg 3505
ggatttgaga taccacaaac cctgctgaac acagtgtctg ttcagcaaac taaccagcat 3565
tccctacagc ctagggcaga caatagtata gaagtctgga aaaaaacaaa aacagaattt 3625
gagaaccttg gaccactcct gtccctgtag ctcagtcatc aaagcagaag tctggctttg 3685
ctctattaag attggaaatg tacactacca aacactcagt ccactgttga gccccagtgc 3745
tggaagggag gaaggccttt cttctgtgtt aattgcgtag aggctacagg ggttagcctg 3805
gactaaaggc atccttgtct tttgagctat tcacctcagt agaaaaggat ctaagggaag 3865
atcactgtag tttagttctg ttgacctgtg cacctacccc ttggaaatgt ctgctggtat 3925
ttctaattcc acaggtcatc agatgcctgc ttgataatat ataaacaata aaaacaactt 3985
tcacttcttc ctattgtaat cgtgtgccat ggatctgatc tgtaccatga ccctacataa 4045
ggctggatgg cacctcaggc tgagggcccc aatgtatgtg tggctgtggg tgtgggtggg 4105
agtgtgtctg ctgagtaagg aacacgattt tcaagattct aaagctcaat tcaagtgaca 4165
cattaatgat aaactcagat ctgatcaaga gtccggattt ctaacagtcc ctgctttggg 4225
gggtgtgctg acaacttagc tcaggtgcct tacatctttt ctaatcacag tgttgcatat 4285
gagcctgccc tcactccctc tgcagaatcc ctttgcacct gagaccctac tgaagtggct 4345
ggtagaaaaa ggggcctgag tggaggatta tcagtatcac gatttgcagg attcccttct 4405
gggcttcatt ctggaaactt ttgttagggc tgcttttctt aagtgcccac atttgatgga 4465

gggtggaaat aatttgaatg tatttgattt ataagttttt ttttttttt gggttaaaag 4525
atggttgtag catttaaaat ggaaaatttt ctccttggtt tgctagtatc ttgggtgtat 4585
tctctgtaag tgtagctcaa ataggtcatc atgaaaggtt aaaaaagcga ggtggccatg 4645
ttatgctggt ggttaaggcc agggcctctc caaccactgt gccactgact tgctgtgtga 4705
ccctgggcaa gtcacttaac tataaggtgc ctcagttttc cttctgttaa aatggggata 4765
ataatactga cctacctcaa agggcagttt tgaggcatga ctaatgcttt ttagaaagca 4825
ttttgggatc cttcagcaca ggaattctca agacctgagt atttttata ataggaatgt 4885
ccaccatgaa cttgatacgt ccgtgtgtcc cagatgctgt cattagtcta tatggttctc 4945
caagaaactg aatgaatcca ttggagaagc ggtggataac tagccagaca aaatttgaga 5005
atacataaac aacgcattgc cacggaaaca tacagaggat gccttttctg tgattgggtg 5065
ggatttttc ccttttatg tgggatatag tagttacttg tgacaaaaat aattttggaa 5125
taatttctat taatatcaac tctgaagcta attgtactaa tctgagattg tgtttgttca 5185
taataaaagt gaagtgaatc taaaaaaaaa aaaaaa 5221

<210> 4
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 4
gatcccggca tccgaga 17

<210> 5
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 5
ggtataggag ctagagatat cgtcctg 27

<210> 6
<211> 21
<212> DNA

<213> Artificial Sequence

<220>
<223> PCR Probe

<400> 6
ccaagatgcc ggcccacttg c 21

<210> 7
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 7
gaaggtgaag gtcggagtc 19

<210> 8
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 8
gaagatggtg atgggatttc 20

<210> 9
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Probe

<400> 9

caagcttccc gttctcagcc 20

<210> 10
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 10
gtccggtatt tcctcagccc 20

<210> 11
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 11
ccgcggtgcg tggaggtccc 20

<210> 12
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 12
tacgcgctga gccgcggcgc 20

<210> 13
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 13
gcggtttcga agcccgccgg 20

<210> 14
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 14
cctccattct gcaggaccct 20

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 15
tcccaagtgt agcagagaca 20

<210> 16
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 16
ctcctgctgt tatgcccagg 20

<210> 17
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 17
cacggtggtc acgagcccat 20

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 18
cagccaaccc acgtgagaga 20

<210> 19
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 19
gacaagtcta gcgtactccc 20

<210> 20
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 20
gttcaccagc caggtggcat 20

<210> 21
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 21
tgtggaagcc ctcacccaca 20

<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 22
agttgatgtg ccagcggtac 20

<210> 23
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 23
ggaccccaaa ctcagccact 20

<210> 24
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 24
tgcctgggag gcaataaggg 20

<210> 25
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 25
atacatgcta actctctccc 20

<210> 26
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 26
aagtcctcat taggtaggca 20

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 27
tgtaatgagc agctcatgga 20

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 28
tcagtaacct tctcaagccc 20

<210> 29
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 29
ggagctgcct ggacagcaag 20

<210> 30
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 30
tcagtgaccc tgagcattct 20

<210> 31

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 31
tggctggccc actggctcaa 20

<210> 32
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 32
gcatgccctc tggttctgac 20

<210> 33
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 33
gctttgcagt tcaccctgac 20

<210> 34
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 34
gtggtatctc aaatcccagg 20

<210> 35
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 35
tagtccaggc taacccctgt 20

<210> 36
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 36
gtgatcttcc cttagatcct 20

<210> 37
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 37
ctcagcagac acactcccac 20

<210> 38
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 38
gctaagttgt cagcacaccc 20

<210> 39
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 39
aagtttccag aatgaagccc 20

<210> 40
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 40
agagaataca cccaagatac 20

<210> 41
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 41
tagttaagtg acttgcccag 20

<210> 42
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 42
gccctttgag gtaggtcagt 20

<210> 43
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 43
ccatatagac taatgacagc 20

<210> 44
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 44
ctgtatgttt ccgtggcaat 20

<210> 45
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 45
cttgcacgct agctggttgt 20

<210> 46
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 46
gcatcgtctc caacttatct 20

<210> 47
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 47
taaggatgat gtttctccag 20

<210> 48
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 48

cccaaagcca ggtgtagaac 20

<210> 49
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 49
tgtaagagcg gtggctccac 20

<210> 50
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 50
cattctggaa tgccattgtg 20

<210> 51
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 51
ttatgaggat cagcatgtgt 20

<210> 52
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 52
cctctggaac atcaccagtt 20

<210> 53
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 53
ggatgaagca catcagcagc 20

<210> 54
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 54
ttcaccccag aaataccagg 20

<210> 55
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 55
gaaaccagga tattctcccg 20

<210> 56
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 56
tcactggcag agtagtcata 20

<210> 57
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 57
taatcctggc caagatggcg 20

<210> 58
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 58
tcatcatctt tagcatcctg 20

<210> 59
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 59
gcaaagactg accagctgct 20

<210> 60
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 60
gactacccag aagattctgt 20

<210> 61
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 61
cttccctcat ccttacattc 20

<210> 62
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 62
cccgagccag gagagaaagg 20

<210> 63
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 63
cttccccagc agagaccact 20

<210> 64
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 64
ccaatatcct gaagatggca 20

<210> 65
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 65
cccaactaat tcctcctctc 20

<210> 66
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 66
tatagatcct gtccctcagc 20

<210> 67
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 67
ctcccaataa ctcactcagt 20

<210> 68
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 68
aagagattcc taaccctgcc 20

<210> 69
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 69
cacacaaagg aggctgcctg 20

<210> 70

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 70
aagtggcagc tagctctact 20

<210> 71
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 71
caccctcacc aagtaagcag 20

<210> 72
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 72
tgcttcttcc cagtgagaac 20

<210> 73
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 73
atcaagcagg catctgatga 20

<210> 74
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 74
ccctcagcct gaggtgccat 20

<210> 75
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 75
ataatcctcc actcaggccc 20

<210> 76
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 76
cacttaagaa aagcagccct 20

<210> 77
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 77
cagcaagtca gtggcacagt 20

<210> 78
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 78
ggctagttat ccaccgcttc 20

<210> 79
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 79
cccaatcaca gaaaaggcat 20

<210> 80
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 80
aactactata tcccacataa 20

<210> 81
<211> 18508
<212> DNA
<213> H. sapiens

<400> 81
gagatgttag tggtgggcgc cccccgaggg ttcaccactg tttcctgaga aacttcccca 60
gtgcccaccc acccgttctc cgtgtgcccg agggccggtc ctgggctagg ctccgcgccc 120
cagccccaaa ccgggtcccc agccccttcc agagagaaag ctcccgacgc gggatgccgg 180
gcagaggccc agcggcgggt ggaagagaag ctgagaagga gaaacagagg ggagggggag 240
cgaggagctg gcggcagagg gaacagcaga ttgcgccgag ccaatggcaa cggcaggacg 300
aggtggcacc aaattccctt cggccaatga cgagccggag tttacagaag cctcattagc 360
atttccccag aggcaggggc aggggcagag gccgggtggt gtggtgtcgg tgtcggcagc 420
atccccggcg ccctgctgcg gtcgccgcga gcctcggcct ctgtctcctc cccctcccgc 480
ccttacctcc acgcgggacc gcccgcgcca gtcaactcct cgcactttgc ccctgcttgg 540
cagcggataa aaggggctg aggaaatacc ggacacggtc acccgttgcc agctctagcc 600
tttaaattcc cggctcgggg acctccacgc accgcggcta gcgccgacaa ccagctagcg 660
tgcaaggcgc cgcggctcag cgcgtaccgg cgggcttcga aaccgcagtc ctccggcgac 720
cccgaactcc gctccggagc ctcagccccc tggaaagtga tcccggcatc cgagagccaa 780
gatgccggcc cacttgctgc aggacgatgt gagtttccca gcctggcccc gtaccgccgg 840
gtcgcaggcg cgggctgggc ttccagggga cgggttggtg gcagaagaga ggggagagct 900
ccgcggagga cttggtcatc tttttcgagt tgtgctgcct tccgtgagtt gggaatgtgg 960
attgtaattt ggggacttga gtctccaact ttagtttctt aagctttaaa gaaaaatccg 1020
gtcgtgctgg tgcttttatg aattatgcgg gttttccttt gtcttcgtgg ggatgtgagt 1080
gctttacttc tccttcctac tgccgcctcc cgataggttt cgcgcccctc gtccccctcg 1140
ccctccgccc ctaatgtatc tgtacagttt cagggaactt ttctccgttg cgtctcggat 1200
acaccctacc ctcagtgaac tacggcgctg cggaagggtc cgtactgtcc acccttcccc 1260
cagcgtgatt agagagcgga gtggccccag ctgcctccac gtgtctcttc tcctgactct 1320
cctcttcctc ccccttccag atctctagct cctataccac caccaccacc attacagcgc 1380
ctccctccag ggtcctgcag aatggaggag ataagttgga gacgatgccc ctctacttgg 1440
aagacgacat tcgccctgat ataaaagatg atatatatga ccccacctac aaggataagg 1500
aaggcccaag ccccaaggtt gaatatgtct ggagaaacat catccttatg tctctgctac 1560
acttgggagc cctgtatggg atcactttga ttcctacctg caagttctac acctggcttt 1620
ggggtaagca gcctccctgt cctcctgacc tagtcctcca ggtactcact gctcttttaa 1680
taaggtagga tcttacagag gacaccagcc cctcccagcc tcccggttgg ggtttttctc 1740
aggcatttct ctttggttgc ttcaggccta gtgggctggg aagaacctgg gggtactgag 1800

atgcaggact gtcaatgctg ggggttgaga gctttggaac cttgtgcttg tgggctttga 1860
agtgtgctgt gctggagagt cagctttccc tgaaagagct tttctgtttg agtcatttgc 1920
ttggctgcct gtcccacccc tgccagccac aaaagaatca aacccctcta cctgggaggc 1980
atgggaacat ggtactaaac cattggcttt ctagggtttg tgttgagcaa tcataggcta 2040
gcacaaggga aactactcag ggagagagtt tattggaaag ggaggagaga gctcattgga 2100
aagaggaaa aagagaggtt gttatccaca aaactatttt gacctgaccc cttggccaga 2160
ccaggcttct tcgttacaga ggaagatgaa gctcccgtgc aacccaagtc acacaggtgt 2220
gtgttgctct gttactctac attccagggt gctgcacata ccagtcaaca aaatgctctt 2280
agaatgaaat caggctgaag atatgtttca tgttccatcc cccgtccagc ctgcttcagg 2340
cccccctact gatgccatga agtgccaaga attctgcacc ttccaacacc agtcctaccc 2400
atccctcctt gccagggaca tcgaggccag gccagaaaag agagcccggt cttgaggctg 2460
ctgtaatgag ggagacagtt cccagtttgt ccccgacctg cccttagctc agctctttca 2520
gggacctgtt ggtgtggcct gatggcatgg ccctgccccc tggatacaca catgcgcttt 2580
gcaggctttt tcacctctgt cactatgagc ctaagttggg aagggaaagc agggagctct 2640
gcagatccag gggccctgca ctgctacttt ctaaggggtg gtgagccagg acttctggtg 2700
tgggaaactt tctgacagct cgctcttgaa gggtagttat gcagaagggc tggtaggcca 2760
agttttagct gtttccctca ggacctctta ggtcttctga agatggtgag atctggttca 2820
ttgagctttt gtttccagaa atccttccagg tgctacagtg aaatgcaact gagaagagcc 2880
cctttgtcag gatctcagtt tttctaggta ccacctgtgg gcaacagtac ttttttagga 2940
tggggaaggt agcattcctt gggttacata tgtgtcacag ccgcagagac agaacaggcc 3000
aggtgcagat cagttcatct gcataccagg aagagctctt gtatttgtga tggagatga 3060
acatctgttg tctagcccct ctgaggatcc agcagaactt cagttgcagc tgagggatga 3120
ggagcaggga tagcattccc caggcagtct gtggatgcct ctcctccacc tcagcacccc 3180
agaggatagt cttcacaagt agttttctct cctgcaagct ccttccagcc tcagcacccc 3240
ctgtaggttt cctgaagccc agagtttgac ccgattgcct ctgcttggtt atcctcagtt 3300
gctactgcaa ggagcagaat tccatcccaa agtgaaggct gtgcctgcta catttttttg 3360
gtgacctgcc catgggtgtg tgctgtgccc ttgggcagat aaatgtggct cacagagact 3420
agatggtaac ttattttact gggccctttg gtggatggct tagctgaaag aatgaccatg 3480
tcgatgtggg gatatcagaa ctcctctgtc ttgagaaaca aggagggtga ggggaggagg 3540
gtcagaggtc tcaacttgga catcttctct tcccaccttc agaatttagg agcttcacct 3600
ttcttgtttt aatccctatg gacaatgtta aattagcaac tggtcgtgat tccagcattt 3660
cttatgactg agcacttttg agagccttaa atctctttca ttttggagtc tcccaaagaa 3720
gcccttagga gaatgcctct ggcaacactg agagccagag gcaaaaccat tcaagtctct 3780
ttcttaaggc cagagcaatg agatgttgct taaccatcaa tctggacatt ttcctccct 3840
ggggaggaga gaaggaataa atctccaact gatttaagcc cttctatttg ataggcttag 3900
aggtgtttct agaaaaggca ccagagtgcc tgagttcttt ccccaatttc cctgttaata 3960
taggatctta tatacgttct gagtcaacac tgccctaggg tcttgcagca aataacaacc 4020
ctagaagctc ccttgctcat tagagagagc tctggctcaa ctgatggttt cccgagtaag 4080
atgcaggtag atactgtatc tggggagatg tcagtcacca cttggcttga gggcagatca 4140

cctggggcct cagtccccac tctgagggaa tgtggagaga gctcttgttg gggctgactg 4200
gctctgtggc tctcctggag atcttatagg aggaatagaa gagaagaaag gaggtagggt 4260
tgggggggaaa aggaggttgt ttaggaaaca gctatcaatg gctgcaaaag aacacaggac 4320
aatttgttac aatgtgtggt gtctccaact gcaactaagt tctgtggcca ctgaggatct 4380
attgtttcta gctgtttccc taggaatgaa acattgttaa gagtttctat caaggccaca 4440
gcttctgcct gctagagcta ctgaacagag gaagatatgg ggacgcccag cagcccactt 4500
cccagttaga gattatatct ggcacctcct gagcctgcag gcctccagga aggtgaggga 4560
agacaatggt ggggtgcttc actgacagct tgaagaatat cccaccattg tctagagagc 4620
gttgcccggt gagagtatgg gctgacaggg atgtggcaaa ggcgagacag aggagttgtg 4680
catgtatctt gggggaggtg gatggtatag ctggaacgtg aaatctttgg taaagcttaa 4740
gacactgtac aaattggatt tatgcacagg gctaattttt ccctgatttg gccacactga 4800
ctgcttgaat atttaaatgc ttttttgtac cagttgataa atggccatag tctgaatgcc 4860
ctaagagtcc cctacaacta agggcttctc aaattggtca gtgcccagat tgtactggct 4920
gttattttat tttttgagat aaggtcttgc tgtgttgata aggcttgagt gcagtggcgc 4980
gatcttggct caccgcagcc tcgacctcct gagctcaaga gatcctccca cctcaacctc 5040
ttgagtagct gagaccacag gcaggtgcca ccatgccaag ctaattttta aaattatctg 5100
tagaggcaag gtctccctat gttatcccag ctggtcttga actcctgggc tcaaggggat 5160
cttcctgcct tggcctccca aaatgctggg atgacaaagt ggttcatact acacctggcc 5220
ctctgctgtt attttaataa caccctggct tatgggttct gagctctgca ggagtagttt 5280
gtggccctta aaaccttaga gaaggcctag atagaggtga aaggagatag ctaggccctg 5340
ggagaatgcc tttaagatga agaatgagtg gtaagagcac tattctctct cctgcctttc 5400
tgactcctta gttcctggga ttctttagct tatctttttt tcctgggttg agaggttggg 5460
gggtgatatt tttcaagtgg taaaatctaa gggatgtggt tatccctaga gttcatggta 5520
aagccagttc tcacccaaag cctgacgaag acagtttcta gcatccagag agtgtctctg 5580
gcatcctttc ccagatggaa ctcacactga ttggtgactc ccccactgtc ttctcctggc 5640
aggggtattc tactattttg tcagtgccct gggcataaca gcaggagctc atcgtctgtg 5700
gagccaccgc tcttacaaag ctcggctgcc cctacggctc tttctgatca ttgccaacac 5760
aatggcattc caggtaagaa gttgtctctg ctcagctgtt tgtcctccac actattaatg 5820
atccggggac agaaaggagg gatcagcacc agagaggagc cacacctgac agccatttca 5880
ctttcctctc tcctgtagtc acctcaagtt ccagttcagt ccttaagtcc ataaagcatg 5940
aagagacttc tgagtcttgg aaaagggaac tggaagataa ttggaaaata ctcctgatgt 6000
gtaggaatat ttttgatcct aaggtccctg tgttgtcaca caatctggcc gttgtggctc 6060
ttcatcataa ggggctttgg cacataagcc agagactgac cttagattcc tgggcagaca 6120
ctggacaata aattcactat ttaaggtaaa tatcttaggg aggcagagct gggaggatca 6180
ctggagccca ggagtttgaa gctgcagtga gccatgatat caccactgca ctccagcctg 6240
ggtgacaaga ccccaacttt aaaaaaaaaa tttcaaaagt gaataactta ggactccacc 6300
acagtgggat tgaagttgat gttcccagac tcgtgaactc ttattttgag ataatgagag 6360
caaacacttt tattgcactg actatgagcc tggcactatt ctaagcattt gatataaagt 6420
cctcacaaaa atcttaggaa ataggtacta ttatccccat tttacagatg aggaaaccaa 6480

gttacagaga gattagatag accagcccaa cattgtggcc ctttcttggg ctgccatggt 6540
ggctaagtaa aacattgagg tttgttaagg caaaaaacaa acctgggcac ggtggctcac 6600
gcctgtaatc tcagaacttt gggaggccga ggtgggcaga tcacaaggtc aggagatcaa 6660
gatcatcctg gctaacacag tgaaactctg tctctactaa aaatacaaaa aattagccag 6720
gcgtggtggc gggcacctgt agtcccagct acgtgggagg ctgaggcagg agaatggtgt 6780
gaacctggga ggcagagctt gcagtgagct gagatcgcgc cactgcactc cagcctgggc 6840
aacagcaaga ctccatctca aaaaaaaaaa aaaaaaagtt tatagcaaag acagaatgaa 6900
gggaaatggg gaaagggaat gcatcatagt cattaagctg tagcaatggg caaatgatag 6960
catgtggcgt ttggcttagc ttggagcaag aggaagaaag gaaaccaact tagtggtggc 7020
aatatcccaa gaacttgcca catttgcatg atcatctctg ccatagcagc ttataccttg 7080
aaggcttcca aagttgtcct gtggagcaaa aggaaggaag agagatattg gtacattctt 7140
taagggatgg aaaaagtcat gaagaagccc agaggtcgtt tgaaaatgca gtcatgatca 7200
cgagttgcat gcctggcctt gttattgggt tgtatgagct cttttgcaag gcaccagaat 7260
ggtgcaccct gcagctgcag cttatctact gattgagacc ctaggacaca aggctgcctg 7320
cctcatgttc cccatgccta gggattaggt accccatgag gatcttttcc aacattcctt 7380
gcttaaagaa ttgcaatgtt ctcacttctt gaaactctct gagctctgta tgatttacct 7440
ccgttccacc caccatataa ctttcaagaa acagcagttc tattgctatg gtcctgggac 7500
tttaagttgc ttttttctac ttaagcttca gtggcaagtt gggagaagaa gggaggcaac 7560
tccatgactc ctttggagcc cagattcctg ggtattttgt gaggttgggc tgagcgcctt 7620
gggctcttga tacctgtcca ttgggattct cctaataggg tgtctatcct caagccttac 7680
attcctcttc tctctctccc cagaatgatg tctatgaatg ggctcgtgac caccgtgccc 7740
accacaagtt ttcagaaaca catgctgatc ctcataattc ccgacgtggc tttttcttct 7800
ctcacgtggg ttggctgctt gtgcgcaaac acccagctgt caaagagaag gggagtacgc 7860
tagacttgtc tgacctagaa gctgagaaac tggtgatgtt ccagaggagg tgagtgaagc 7920
cctgatggag gtggggatat ggccctggca cctggtcatt agggacccca ttttttctcc 7980
tgagactttc aaaatataag ctgagaaatt tgctgggttt gcatgttcac aatcttaatt 8040
taaaatccca atttttaaca tcccacgggc ccgtagccat agactattgc tccatttctt 8100
tctctctgac tatcttaatt aaacccatta cattcaagag atgtttattg tcctaggaca 8160
gtcatagatt caaagatgat tatagcctag ttgcctaggt ttgtttgttt gtttttgtgt 8220
ttgtgtttca acagtctttc tctcttgccc aggctggagt gcagtggcac aatcatggct 8280
cactgcagcc ttgacttccc aggctcaagc aatccttcta cctcaacctc ctgagtatct 8340
gggactacag gcacacaccg ccatgcctgg ctaatttttt gtggggacaa ggtctcactc 8400
actatattgc ccaggccggt agcttagttc ttaccttcaa aaagtttgta gcctatcggg 8460
gtggagagat aagccaagta tccagataac catggcataa ggcagaatat tttctgtact 8520
atgagaggta caaaggggag ggagattgct caatgggcaa caccaaggaa gtgatatgaa 8580
ataaatagtg ttggaatcca ccaacggata gaaatttta caactatgtg tggggagaga 8640
cagtgcaaac agaagaaaca gaatgagcta aaacacgaag catgttccag caatagagtc 8700
cttttgcttg aagtataggg tatgggaaga agtaagactg gagagactaa tgccattctt 8760
gtcgagtcct aaaagcagac ttaggactta attcaataag caataggaag ccattacatc 8820

ttttgaactg caatgtggca tagttacgga cgtgctttag gaaggctgct tttagaacaa 8880
gtgtaagaaa ccactgagcc aaagtgagag gtagggacat aagttaggta atgaggaccc 8940
ctgctagcga agcagtggca gaaatggaga aaagagttgg gtgcagggaa tgtcagtgat 9000
gtaaaagtca aagacttgac tgctgaagga atgtagggaa tcagtgccct tggaatgtca 9060
atggcctggt ctacattgag aatgaagact gagaaagggc ttcctgaggg acagagagct 9120
gcaggtgatc aaggacactc aatgggtctc tgagggaaaa gaagaccaaa gaattaggga 9180
gtagctagca gaaaatggag gcatgacact aaacacagac tgaaaaagag tgctgattag 9240
aaagagaaag gagcccaaag gcagatggga aaaccagcca aggatggaga gacgtctgtt 9300
cattagtttg tagtttggac ctcacctatc ttaccaatgt ggtattatgc tctagtaaaa 9360
agtcagcgat ggccgggcat ggtggctcat gcccgtaatc ccagcacttt gggaggctga 9420
ggcgggagga ttgctggaaa gttcaggcat tcgagaccag cctgggcaac atagtgagac 9480
ctcatctcta caaaaaatta aaaactaaat gggcacgatg gttcatgcct gtggtcccag 9540
taaggtcacg ccactgcact ccagccttgg caacagagtg agaccctgtc aaaaaaaaca 9600
aacaaaaata aataaaacaa tgaacttaga gtcagacaag caattcaaca tggaagaaag 9720
acagcccatc ccctcccaat tagtgtggaa gatccatgta ggtgtggagt ccccctccat 9780
tgacctggtg tctggtctgt caatgtaggt actacaaacc tggcttgctg atgatgtgct 9840
tcatcctgcc cacgcttgtg ccctggtatt tctggggtga aacttttcaa aacagtgtgt 9900
tcgttgccac tttcttgcga tatgctgtgg tgcttaatgc cacctggctg gtgaacagtg 9960
ctgcccacct cttcggatat cgtccttatg acaagaacat tagccccggg gagaatatcc 10020
tggtttcact tggagctgtg ggtaagtcag ctgtccaagt aagactacat ccagtggtct 10080
gctgattagg ggattaggct aggagccaga aaaactagat aaatctgttt tttatggcta 10140
ctttgtatct cagtttttcc actataaaat tagggggcag tatactggaa aacgcttttg 10200
agagtcaggc aacatgtttt atgtaaaaat gaaaggataa gaaacaaaac acaaaaaaac 10260
actgattttg attccaggtt ctaaaacaat ttccaaatgc catgtatgct ccgggcccgg 10320
cggctcatgc ctgtaatccc agcactttgg gaggctgagg cgggcaggtc acctgaggtc 10380
aggagtttga gaccagtctg gccaacacgg tgaaaccctg tttctattaa aaagcaaaac 10440
aaacaaacaa aaaagaaaac caaatgccat acatgatgag caccttagag ttttcctttc 10500
tttcatcaac tctgggctgg actgcagtct tgcttgaggc aaggaatgca taaatagaac 10560
aatgggatca tctgagtggc cagtaagcct ggtgttttat gaacttcaag tatgcacaca 10620
aagtattttt tatctttcca ctctactcag atatgccttg ctttaagagt gtgccgtgcc 10680
ttactgtttg gtgatgccat tatgaagggc atcaaaataa ctgctggtgg ccctttacta 10740
ccacctaccc tcttgtctcc tcttgtcctc tatttttctc tcttctactt ctattctggg 10800
ctaggaacat cccttccccc aacatgcctt caggaatctc ccaataaagc agtgtgatca 10860
caagttcctg ctcaattctc taatgttgat cttatctttt ctctttttctt tcctttcatt 10920
ttctttcttt tctttttctt tccttttctt tctaatgaga cagggtctca ccatggtgcc 10980
caggctggtc ttgaaccctg ggctgaagtg atcctcctgc ctcagcctcc caaagtatct 11040
acatttttt ctctgtccct ctttccaact gaatatagac tttcaccaag gccctgaatg 11100
aattttcctt aaatagatct ggcgacctct tctttccagt aattggtgct attggtcatt 11160

caataatatc tagacaacca cactactcca cacatttagg caggtcattg cctaacactc 11220
attttctttt tctctttaaa aatcttcctt tatattctca accttaacca tctttattat 11280
cttttaaatt gttgttgaga cagtctcact ctgttgccca ggtttcagtg cagtggtgtg 11340
atcacagctc actgcagcta tgacctcctg ggctcaagcg atcctcgggg ttcagcctcc 11400
caagtaactg ggattacagg tgcatgccac catgcttggc taatttttct atttttttgt 11460
agagacatgg ttttgccatg ttgcacaggc tggtctcgaa ctcctgagct caagtgatct 11520
tcctgccttg gcctcccaaa gtgctggaat tataatagcc gtgagccact gcgcctggcc 11580
tactatgttt attaaaagga tttattgcct gtaatcccag cactttggga ggccgaggcg 11640
ggtggatcat gaggtcagga gatcgagacc atcctggcta acaaggtgaa accccgtctc 11700
tactaaaaat acaaaaaaat tagccaggcg cagtggcggg cgcctgtagt cccagctact 11760
tgggaggctg aggcaggaga atggcgtgaa cccgggaagc ggagcttgca gtgagccgag 11820
attccgccac tgcagtccgc agtccggcct gggcgacaga gcgagactcc gtctcaaaaa 11880
aaaaaaaaaa aaaagattta tttgtctagg cgtggtggct cacacctgta atcccagcac 11940
tttgggaagc caaagtgggt ggttcacttg aggtcaggag ttagagatca gccaggccaa 12000
tatggtgaac ctctgtctct acttaaaaaa aaaaaaaaaa aaaagtacaa aaaacttagc 12060
caggcatggt ggcacgtgcc tgtagtccca gctactcagg aggctgaggc agaagaatcg 12120
cttgaacccg ggaggcagag gttgcaatga gccgagattg tgccactgca ctccagcctg 12180
ggtgacagag actccatctc aaaaatatat aataaaaata aaagcatttt ttttctctct 12240
ttttaacttt cacatatctc ttttcaggca ccttcttacc attgtgccta ttcttacttt 12300
aacccatgat taaaataaat catatacact gtataaatct gagattatca taggaatgga 12360
gtttctggca tgagatgttt cctgtatcgc aaatggatct ataatgacct tccccacctc 12420
cagcctctgg gtggccatga gttcaaagtg gctgccaata tctgacctgt tgttgttatc 12480
attcactcct ccttgcctgc tgctttcctc ccttatcacc tcacccttg ttctcctcca 12540
gctctgtttc ctgccaccct aatctttttg tttcttgaat tacctccccc actgtcacat 12600
gctcatcttc tctgccaaat taaccttctc ccttgagcct ttcttgggct gtctcttgct 12660
gccccagttg caaagtcctg tcttctttct acccgttgac cctcttcttt ttttttcctc 12720
ccttgtctct gtgtgcatct gattccattt taaatctggt aaccaaaggc ctggctagtg 12780
cttacacaca gcccagctgc aaaaccatta atggacatta ataatcctca gtacctttat 12840
tcctggcatt ctacccccct cctccccagt tcacactgca gatcatcagg tgtcacagag 12900
agaggacata ccttgaaatg ccctagatga tgtcatttac tttgcaggac ttccttgcct 12960
tgcttctgat taatgtcatg actggtctgt ctgagggtac tgttatctac aaagagccaa 13020
atattagctc ttagtagcta ttctttatcc atgcctgatt agggtcagta ttatttttgg 13080
ctgtggttca gaaagaagag tcctgccaag cgttggcaaa ctctctatct gtcgagtttc 13140
caaagcttta cacgttagag aaattgctgt gaatccagaa tttgtttgtt ttcctccctc 13200
cagcaaagtg aaatgttcat cccaagagtc ctcaaaatct cagaggttac agggtatttt 13260
tcttcctcag agagcttctg ttttatcagc acctccccca caccagggtc aaagctcaaa 13320
aaagttggag cagcccctgg gaactgcagt ggctgaggac attccagccc ctgggctggc 13380
ctttcttctg atctttggct gcagggccca ctcttttgga acctcccacc cctagaggtg 13440
gttccagtgt ggtggggaaa ggtgtgcttc tttactcatt tttttaagag tcatagccag 13500

agtgcttcat tctgcaagga cgtgcacatg cacatgcaca cagagccttg agggcagggc 13560
caagagtgaa tttggaattt tccaacctga tacccattcc caaaagtagg agcttctctc 13620
tagtcatttt atcctctgag aaactgtcag ttctcctccc acaaggctcc cagacagcca 13680
cgggtgacca gggtctccaa tcactcctta agatgccttt gactggctgg gcgcagtgac 13740
tcatgactgt aatcctagca ctttgggtgg tcaacgtggg agggttgctt gcaacatggc 13800
aagaccccgt ctctacaaaa aaagtaaaat aataaaagta aagatgcctc tgaggggatc 13860
tgtttggttc atattaaaag agactgaatt catccattca acaatagcga gtttctccca 13920
ggtgtgaggt accctgctag ctaactggtg tgcacaaatc aagaaaacct caatgcaccg 13980
tcactccata acttctcgct tttgtttcag gtgagggctt ccacaactac caccactcct 14040
ttccctatga ctactctgcc agtgagtacc gctggcacat caacttcacc acattcttca 14100
ttgattgcat ggccgccctc ggtctggcct atgaccggaa gaaagtctcc aaggccgcca 14160
tcttggccag gattaaaaga accggagatg gaaactacaa gagtggctga gtttggggtc 14220
cctcaggttc ctttttcaaa aaccagccag gcagaggttt taatgtctgt ttattaacta 14280
ctgaataatg ctaccaggat gctaaagatg atgatgttaa cccattccag tacagtattc 14340
ttttaaaatt caaaagtatt gaaagccaac aactctgcct ttatgatgct aagctgatat 14400
tatttcttct cttatcctct ctctcttcta ggcccattgt cctccttttc actttattgc 14460
tatcgccctc ctttccctta ttgcctccca ggcaagcagc tggtcagtct ttgctcagtg 14520
tccagcttcc aaagcctaga caacctttct gtagcctaaa acgaatggtc tttgctccag 14580
ataactctct ttccttgagc tgttgtgagc tttgaagtag gtggcttgag ctagagataa 14640
aacagaatct tctgggtagt cccctgttga ttatcttcag cccaggcttt tgctagatgg 14700
aatggaaaag caacttcatt tgacacaaag cttctaaagc aggtaaattg tcgggggaga 14760
gagttagcat gtatgaatgt aaggatgagg gaagcgaagc aagaggaacc tctcgccatg 14820
atcagacata cagctgccta cctaatgagg acttcaagcc ccaccacata gcatgcttcc 14880
tttctctcct ggctcggggt aaaaagtggc tgcggtgttt ggcaatgcta attcaatgcc 14940
gcaacatata gttgaggccg aggataaaga aaagacattt taagtttgta gtaaaagtgg 15000
tctctgctgg ggaagggttt tcttttcttt ttttctttaa taacaaggag atttcttagt 15060
tcatatatca agaagtcttg aagttgggtg tttccagaat tggtaaaaac agcagctcat 15120
agaattttga gtattccatg agctgctcat tacagttctt tcctctttct gctctgccat 15180
cttcaggata ttggttcttc ccctcatagt aataagatgg ctgtggcatt tccaaacatc 15240
caaaaaaagg gaaggattta aggaggtgaa gtcgggtcaa aaataaaata tatatacata 15300
tatacattgc ttagaacgtt aaactattag agtatttccc ttccaaagag ggatgtttgg 15360
aaaaaactct gaaggagagg aggaattagt tgggatgcca atttcctctc cactgctgga 15420
catgagatgg agaggctgag ggacaggatc tataggcagc ttctaagagc gaacttcaca 15480
taggaaggga tctgagaaca cgttgccagg ggcttgagaa ggttactgag tgagttattg 15540
ggagtcttaa taaaataaac tagatattag gtccattcat taattagttc cagtttctcc 15600
ttgaaatgag taaaaactag aaggcttctc tccacagtgt tgtgcccctt cactcatttt 15660
tttttgagga gaaggggtc tctgttaaca tctagcctaa agtatacaac tgcctggggg 15720
gcagggttag gaatctcttc actaccctga ttcttgattc ctggctctac cctgtctgtc 15780
ccttttcttt gaccagatct ttctcttccc tgaacgtttt cttctttccc tggacaggca 15840

gcctcctttg tgtgtattca gaggcagtga tgacttgctg tccaggcagc tccctcctgc 15900
acacagaatg ctcagggtca ctgaaccact gcttctcttt tgaaagtaga gctagctgcc 15960
actttcacgt ggcctccgca gtgtctccac ctacacccct gtgctcccct gccacactga 16020
tggctcaaga caaggctggc aaaccctccc agaaacatct ctggcccaga aagcctctct 16080
ctccctccct ctctcatgag gcacagccaa gccaagcgct catgttgagc cagtgggcca 16140
gccacagagc aaaagagggt ttattttcag tcccctctct ctgggtcaga accagagggc 16200
atgctgaatg ccccctgctt acttggtgag ggtgccccgc ctgagtcagt gctctcagct 16260
ggcagtgcaa tgcttgtaga agtaggagga aacagttctc actgggaaga agcaagggca 16320
agaacccaag tgcctcacct cgaaaggagg ccctgttccc tggagtcagg gtgaactgca 16380
aagctttggc tgagacctgg gatttgagat accacaaacc ctgctgaaca cagtgtctgt 16440
tcagcaaact aaccagcatt ccctacagcc tagggcagac aatagtatag aagtctggaa 16500
aaaaacaaaa acagaatttg agaaccttgg accactcctg tccctgtagc tcagtcatca 16560
aagcagaagt ctggctttgc tctattaaga ttggaaatgt acactaccaa acactcagtc 16620
cactgttgag ccccagtgct ggaagggagg aaggcctttc ttctgtgtta attgcgtaga 16680
ggctacaggg gttagcctgg actaaaggca tccttgtctt ttgagctatt cacctcagta 16740
gaaaaggatc taagggaaga tcactgtagt ttagttctgt tgacctgtgc acctacccct 16800
tggaaatgtc tgctggtatt tctaattcca caggtcatca gatgcctgct tgataatata 16860
taaacaataa aaacaacttt cacttcttcc tattgtaatc gtgtgccatg gatctgatct 16920
gtaccatgac cctacataag gctggatggc acctcaggct gagggcccca atgtatgtgt 16980
ggctgtgggt gtgggtggga gtgtgtctgc tgagtaagga acacgatttt caagattcta 17040
aagctcaatt caagtgacac attaatgata aactcagatc tgatcaagag tccggatttc 17100
taacagtcct tgctttgggg ggtgtgctga caacttagct caggtgcctt acatcttttc 17160
taatcacagt gttgcatatg agcctgccct cactccctct gcagaatccc tttgcacctg 17220
agaccctact gaagtggctg gtagaaaaag gggcctgagt ggaggattat cagtatcacg 17280
atttgcagga ttcccttctg ggcttcattc tggaaacttt tgttagggct gcttttctta 17340
agtgcccaca tttgatggag ggtggaaata atttgaatgt atttgattta taagtttttt 17400
ttttttttt gggttaaaag atggttgtag catttaaaat ggaaaatttt ctccttggtt 17460
tgctagtatc ttgggtgtat tctctgtaag tgtagctcaa ataggtcatc atgaaaggtt 17520
aaaaaagcga ggtggccatg ttatgctggt ggttaaggcc agggcctctc caaccactgt 17580
gccactgact tgctgtgtga ccctgggcaa gtcacttaac tataaggtgc ctcagttttc 17640
cttctgttaa aatggggata ataatactga cctacctcaa agggcagttt tgaggcatga 17700
ctaatgcttt ttagaaagca ttttgggatc cttcagcaca ggaattctca agacctgagt 17760
atttttata ataggaatgt ccaccatgaa cttgatacgt ccgtgtgtcc cagatgctgt 17820
cattagtcta tatggttctc caagaaactg aatgaatcca ttggagaagc ggtggataac 17880
tagccagaca aaatttgaga atacataaac aacgcattgc cacggaaaca tacagaggat 17940
gccttttctg tgattgggtg ggatttttc ccttttatg tgggatatag tagttacttg 18000
tgacaagaat aattttggaa taatttctat taatatcaac tctgaagcta attgtactaa 18060
tctgagattg tgtttgttca taataaaagt gaagtgaatc tgattgcact gggtctggga 18120
gtttcttttg gctgtgattc aaagtcttgg gatttgtctc tggctcatat ctatgtctgt 18180

acctttaaga gtataaaaga agtagaagtt acaatggttg actcataccc cattaacctg 18240
ccctgctgtc ctaaaggtaa ctttaggtta aactctggga cgcaggaagc caggagtctg 18300
ctgccattaa atcaaacaca ttaacaccag ctggcaactt ggccctgggg aagtgccagg 18360
gttctcgggt gtgtcacgtg gtcggtcaca tagacctaag ataaagacac tgggagagga 18420
aaagaccagc aggagaagcg ctccctggga aagcagtttt ttgctcttgc ccaggctgga 18480
gtgcaatggt gtgatctggg ctcactgc 18508

<210> 82
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 82
gtgcgcgcga gcccgaaatc 20

<210> 83
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 83
ccgtgtccgg tatttcctca 20

<210> 84
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 84
ggcaacgggt gaccgtgtcc 20

<210> 85
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 85
atttaaaggc tagagctggc 20

<210> 86
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 86
cgagccggga atttaaaggc 20

<210> 87
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 87
gaggctccgg agcggagttc 20

<210> 88
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 88
ttggctctcg gatgccggga 20

<210> 89
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 89
gtgggccggc atcttggctc 20

<210> 90
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 90
tcctgcagca agtgggccgg 20

<210> 91
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 91

agctagagat atcgtcctgc 20

<210> 92
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 92
ccatacaggg ctcccaagtg 20

<210> 93
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 93
gtagaacttg caggtaggaa 20

<210> 94
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 94
gctgttatgc ccagggcact 20

<210> 95
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 95
agacatcatt ctggaatgcc 20

<210> 96
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 96
ctgaaaactt gtggtgggca 20

<210> 97
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 97
gtgtttctga aaacttgtgg 20

<210> 98
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 98
aagtctagcg tactcccctt 20

<210> 99
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 99
tttgtagtac ctcctctgga 20

<210> 100
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 100
cataaggacg atatccgaag 20

<210> 101
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 101
cccaaactca gccactcttg 20

<210> 102
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 102
aaacctctgc ctggctggtt 20

<210> 103
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 103
gtagcattat tcagtagtta 20

<210> 104
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 104
tactggaatg ggttaacatc 20

<210> 105
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 105
tcagcttagc atcataaagg 20

<210> 106
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 106
agactgacca gctgcttgcc 20

<210> 107
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 107
gctggacact gagcaaagac 20

<210> 108
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 108
tttggaagct ggacactgag 20

<210> 109
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 109
tctggagcaa agaccattcg 20

<210> 110
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 110
cttcaaagct cacaacagct 20

<210> 111
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 111
ccacctactt caaagctcac 20

<210> 112
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 112
tcaagccacc tacttcaaag 20

<210> 113

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 113
ctctagctca agccacctac 20

<210> 114
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 114
tgtgtcaaat gaagttgctt 20

<210> 115
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 115
cccgacaatt tacctgcttt 20

<210> 116
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 116
ttacattcat acatgctaac 20

<210> 117
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 117
tgtctgatca tggcgagagg 20

<210> 118
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 118
aaggaagcat gctatgtggt 20

<210> 119
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 119
ggagagaaag gaagcatgct 20

<210> 120
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 120
aactatatgt tgcggcattg 20

<210> 121
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 121
tagatgttaa cagagacccc 20

<210> 122
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 122
aatcagggta gtgaagagat 20

<210> 123
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 123
gggtagagcc aggaatcaag 20

<210> 124
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 124
agcagtggtt cagtgaccct 20

<210> 125
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 125
tactttcaaa agagaagcag 20

<210> 126
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 126
cgtgaaagtg gcagctagct 20

<210> 127
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 127
ccttgtcttg agccatcagt 20

<210> 128
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 128
ggtttgccag ccttgtcttg 20

<210> 129
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 129
cactggctca acatgagcgc 20

<210> 130
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 130

tgctctgtgg ctggcccact 20

<210> 131
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 131
aataaaccct cttttgctct 20

<210> 132
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 132
gactgaaaat aaaccctctt 20

<210> 133
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 133
agagcactga ctcaggcggg 20

<210> 134
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 134
ttgcactgcc agctgagagc 20

<210> 135
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 135
tacttctaca agcattgcac 20

<210> 136
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 136
actgtttcct cctacttcta 20

<210> 137
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 137
cttgcccttg cttcttccca 20

<210> 138
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 138
tttcgaggtg aggcacttgg 20

<210> 139
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 139
tcagccaaag ctttgcagtt 20

<210> 140
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 140
ttctgctttg atgactgagc 20

<210> 141
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 141
atcctcggcc tcaactatat 20

<210> 142
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 142
tccttgttat taaagaaaaa 20

<210> 143
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 143
ctaagaaatc tccttgttat 20

<210> 144
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 144
cttcttgata tatgaactaa 20

<210> 145
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 145
acttcaagac ttcttgatat 20

<210> 146
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 146
aaattccatg agctgctgtt 20

<210> 147
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 147
gaactgtaat gagcagctca 20

<210> 148
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 148
tgaagatggc agagcagaaa 20

<210> 149
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 149
tggaaatgcc acagccatct 20

<210> 150
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 150
cgacttcacc tccttaaatc 20

<210> 151
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 151
gcaatgtata tatgtatata 20

<210> 152

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 152
ccagcagtgg agaggaaatt 20

<210> 153
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 153
cagcctctcc atctcatgtc 20

<210> 154
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 154
ctatgtgaag ttcgctctta 20

<210> 155
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 155
cgtgttctca gatcccttcc 20

<210> 156
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 156
aactaattaa tgaatggacc 20

<210> 157
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 157
ttactcattt caaggagaaa 20

<210> 158
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 158
gaagccttct agtttttact 20

<210> 159
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 159
cactgtggag agaagccttc 20

<210> 160
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 160
gcacaacact gtggagagaa 20

<210> 161
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 161
aatcttaata gagcaaagcc 20

<210> 162
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 162
gactgagtgt ttggtagtgt 20

<210> 163
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 163
agcctctacg caattaacac 20

<210> 164
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 164
ctgaggtgaa tagctcaaaa 20

<210> 165
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 165
ccttttctac tgaggtgaat 20

<210> 166
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 166
tagaaatacc agcagacatt 20

<210> 167
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 167
gcacacgatt acaataggaa 20

<210> 168
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 168
tccatggcac acgattacaa 20

<210> 169
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 169

tcagatccat ggcacacgat 20

<210> 170
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 170
aggtgccatc cagccttatg 20

<210> 171
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 171
gccctcagcc tgaggtgcca 20

<210> 172
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 172
agctttagaa tcttgaaaat 20

<210> 173
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 173
aatgtgtcac ttgaattgag 20

<210> 174
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 174
ctgttagaaa tccggactct 20

<210> 175
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 175
ccaaagcagg gactgttaga 20

<210> 176
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 176
caacactgtg attagaaaag 20

<210> 177
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 177
cttcagtagg gtctcaggtg 20

<210> 178
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 178
ctaccagcca cttcagtagg 20

<210> 179
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 179
actcaggccc ctttttctac 20

<210> 180
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 180
gatactgata atcctccact 20

<210> 181
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 181
aatcctgcaa atcgtgatac 20

<210> 182
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 182
agcagcccta acaaaagttt 20

<210> 183
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 183
aaattttcca ttttaaatgc 20

<210> 184
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 184
cacttacaga gaatacaccc 20

<210> 185
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 185
gagctacact tacagagaat 20

<210> 186
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 186
aacatggcca cctcgctttt 20

<210> 187
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 187
gccttaacca ccagcataac 20

<210> 188
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 188
aggccctggc cttaaccacc 20

<210> 189
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 189
tggagaggcc ctggccttaa 20

<210> 190
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 190
tcatgcctca aaactgccct 20

<210> 191

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 191
ctaaaaagca ttagtcatgc 20

<210> 192
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 192
agaattcctg tgctgaagga 20

<210> 193
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 193
ggtcttgaga attcctgtgc 20

<210> 194
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 194
actcaggtct tgagaattcc 20

<210> 195
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 195
ggacattcct attataaaaa 20

<210> 196
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 196
acacggacgt atcaagttca 20

<210> 197
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 197
cctctgtatg tttccgtggc 20

<210> 198
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 198
tgcgaggagt tgactggcgc 20

<210> 199
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 199
ggcaaagtgc gaggagttga 20

<210> 200
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 200
ggaaactcac atcgtcctgc 20

<210> 201
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 201
ggctgcttac cccaaagcca 20

<210> 202
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 202
ctcagttgca tttcactgta 20

<210> 203
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 203
gtgggaagag aagatgtcca 20

<210> 204
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 204
gccttctcta aggttttaag 20

<210> 205
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 205
tagaataccc ctgccaggag 20

<210> 206
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 206
aacttcttac ctggaatgcc 20

<210> 207
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 207
ccttgcaaaa gagctcatac 20

<210> 208
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 208

cttcactcac ctcctctgga 20

<210> 209
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 209
tttgcactgt ctctccccac 20

<210> 210
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 210
tcagtggttt cttacacttg 20

<210> 211
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 211
tttgtagtac ctacattgac 20

<210> 212
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 212
gctgacttac ccacagctcc 20

<210> 213
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 213
tactgccccc taattttata 20

<210> 214
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 214
ccatttgcga tacaggaaac 20

<210> 215
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 215
aagccctcac ctgaaacaaa 20

<210> 216
<211> 912
<212> DNA
<213> M. musculus

<400> 216
tcccagtctc ccggggtttc tctttgctgg tgcctggaag tgggggtaga tgtgaagtta 60
gaccgagttg tgagtggcgg tagccagtgt cttcctcact tctttcgatg cgatttcccc 120
agtgaaccat ttgctaagcg ccagaccaaa gtcctaggct tgcacacaat tcctacttgg 180
aatcacgtta tcctgctctt aaagaaaagt cacccatcag cccacagcaa agaggataag 240
gagaaaaaga ggggaggaga gacggagaag ctagaggcag agggaacagc agattgcgcc 300
tagccaatgg aaaaggcagg acaaggtggc accaaattct ctttggccaa tgacaagacg 360
ggcttcacag gaggcacatt agcatttatc cccaggcagg gggttggagc agcgcgccct 420
gttgatgcct tcagcatccc ggcgcctcca aggtctactc tggaatctac ttggctttct 480
ttcccgttct tggtcccgcc ctctctctct ccctccctcc ctccctccct tcctccctcc 540
ctccctccct ccctccctcc ctcacctcca cgcctggctt ccttggctag ctatctctgc 600
gctctttacc ctttgctggc agccgataaa agggggctga ggaaatactg aacacggtca 660
tcccatcgcc tgctctaccc tttaaaatcc cagcccagga gatctgtgca cagccagacc 720
gggctgaaca cccatcccga gagtcaggag ggcaggtttc caagcgcagt tccgccactc 780
gcctacacca acgggctccg gaaccgaagt ccacgctcga tctcagcact gggaaagtga 840
ggcgagcaac tgactatcat catgccggcc cacatgctcc aagaggtgag cttccagaag 900
cggccctcgc tc 912

<210> 217
<211> 288
<212> DNA
<213> M. musculus

<400> 217
ttgcagatct ccagttctta cacgaccacc accaccatca ctgcacctcc ctccggaaat 60
gaacgagaga aggtgaagac agtgcccctc cacctggaag aagacatccg tcctgaaatg 120
aaagaagata ttcacgaccc cacctatcag gatgaggagg gacccccgcc caagctggag 180
tacgtctgga ggaacatcat tctcatggtc ctgctgcact tgggaggcct gtacgggatc 240
atactggttc cctcctgcaa gctctacact gccctcttcg gtgagcag 288

<210> 218
<211> 144
<212> DNA

<213> M. musculus

<400> 218
ttgcagggat tttctactac atgaccagcg ctctgggcat cacagccggg gctcatcgcc 60
tctggagcca cagaacttac aaggctcggc tgcccctgcg gatcttccta atcattgcca 120
acaccatggc gttccagtaa gaag 144

<210> 219
<211> 221
<212> DNA
<213> M. musculus

<400> 219
ttccagaaat gacgtgtacg actgggcccg agatcaccgc gcccaccaca agttctcaga 60
aacacacgcc gaccctcaca attcccgccg tggcttcttc ttctctcacg tgggttggct 120
gcttgtgcgc aaacacccgg ctgtcaaaga gaagggcgga aaactggaca tgtctgacct 180
gaaagccgag aagctggtga tgttccagag gaggtaaggg a 221

<210> 220
<211> 247
<212> DNA
<213> M. musculus

<400> 220
atgtaggtac tacaagcccg gcctcctgct gatgtgcttc atcctgccca cgctggtgcc 60
ctggtactgc tggggcgaga cttttgtaaa cagcctgttc gttagcacct tcttgcgata 120
cactctggtg ctcaacgcca cctggctggt gaacagtgcc gcgcatctct atggatatcg 180
cccctacgac aagaacattc aatcccggga gaatatcctg gtttccctgg gtgccgtggg 240
taagtca 247

<210> 221
<211> 3660
<212> DNA
<213> M. musculus

<400> 221
ttgcaggcga gggcttccac aactaccacc acaccttccc cttcgactac tctgccagtg 60
agtaccgctg gcacatcaac ttcaccacgt tcttcatcga ctgcatggct gccctgggcc 120
tggcttacga ccggaagaaa gtttctaagg ctactgtctt agccaggatt aagagaactg 180

gagacgggag tcacaagagt agctgagctt tgggcttctg agttcctgtt tcaaacgttt 240
tctggcagag atttaatatt ctgttgatta actaacaact ggatattgct atcggggtgt 300
taatgatgca tttaacctat tccggtacag tattcttata aaatgagaaa gctttgatca 360
cgttttgagg taataaatat tttatttagc taggattaac catgccacaa gacattatat 420
atttctaagc acacatgata aatgcatata caattttgca caacagcttt aaataataac 480
aataaatttg aacattctat acagagagga tcaaagccaa ggaacatgct gttttgatgc 540
tagggtgagc atggtgctca gtccctgttt gtttgcatgg tgtccagctt tgtttcttct 600
tgtcatcac caccttcagg caaatagttg accaaccact ggcctgtgtc tgtccaccct 660
ccaaagccca ggccaccttt ctgttttctg aaatactgat ccttcctcct gaatacatcc 720
ctccttgttc ctagcttcaa gactgctgcc tcaaataggg atagagcaag tccccgctgc 780
aggttgtgct agatgggatg gagaaattat cttcatttga tacagagcaa gtagattgtc 840
tcgagagaaa agttagcatg cgtggtatga tttgtaagta aagatggaag agagagagag 900
agagagagag agagagagag agaggtagcc atatctaaca gcctacttac 960
caaagacccc aggcctctct gcttggcatg cctcctttct gtccatcctc tgaaccccag 1020
agattagtga gatttgaata attaaatcat tttcagagtg aaggggtta atgcagggtc 1080
tgtgctaggg gagggtttta gcttttggta actgaagatt ttttcatgga aaaagtcttc 1140
gtgttcaatg tgcctagaac tgataactaa acagctgaca tttgtcgggg acagatatgg 1200
tgtgaaacta tgaaaatata agcaaaatct tcacttggaa catgaaacta tttcacttag 1260
aaaataatcg aaggacccga ggtgttgcct gggttgccag tttctttcgt ggctgggcag 1320
gaactagtga ggttgagggg cagtgtctgt aagtagctgc taagaggtgc atttccagat 1380
gaagcccttg gggaacatct gccagggatc cgcatggtgt tggctccatc cattgcttta 1440
gtttcctcct tggattgtgt agaaacttgg cttcccatgg ttttgaacct tccatgcctt 1500
ctttgctttg tggccaccca gcctgcctag tgctgcctag gaagctctta cccacctgat 1560
ttcttctgac atttctttct ttggccttct tttctttctc cggacatgca gctagttgcc 1620
tgagtgtatc aagagcaccc aggacttgct gctgtccagg cctgttcctc ccccagtatc 1680
cgtgggtgtg gaagagctgt gtagcttcag gaagcagagc caggtgccac ctttctgtgg 1740
cttccagatc ctccctacct ccaactcatg tgcctctgtc acagtgattt caggaaagct 1800
tggtagaccc tctagcaaca tctcggttca gaaagtctct ctggtttgtg agttaacagc 1860
tcagctaagt gctgttttgt ctcagtgagt taaccactga atgcgagggt tggttgttga 1920
tctgtctcgg tgtgtgtcgg agtagacagc atatgcactt ctccctgtgc gctttgcaag 1980
gtaatgtggc tttggctgat ccatgcaggc aggtagtggt acagtgctgc tgaaaggaag 2040
aagttcccca ttttatctgt taaaacacca gagacatggg caagtgctaa tggacctcac 2100
ttcaggaaga gggtctgctt cctgaagcca gtgtgtgatg aaaagtgact gagacctgat 2160
atctaaggtg agacctgata cctaacactc tgtcacacag tccagggcca acagtgctat 2220
aggaaagtct agaagaaaac atcacatcag tattttagaa ccatcaacca tctcttgtcc 2280
ctatagccca atccagaggc ctggttttta gaactggctg tgtaaggtgc caaacactca 2340
gttcacttgt agaatcagag cctttttcc cccctatgtt aattgaacac gcgctctgag 2400
ctgttttgtt gaagtagaaa atctcataga aaaatcactg tagatctact gacctatagc 2460
cctctggaaa tgcctttgag atggttttac ttttctaggt catagatgcc tgattataaa 2520

gatgaacaat aaaatcagct ttctttcttt ctcttctgat cttattcccc agatctgatt 2580
caggccatgt tccaaagcaa ggctacattg aggtcctggt gtctttaagt aaaggacatc 2640
tttcagatcc tctcaaagaa ggatttataa cagtttccag atgaatgtac taatagcttt 2700
gggtgcctta tctctttcct aatctgtagt gcctgtgagc tcagtctcac tccttccctt 2760
agcccggaga ccccttagat cgagtgggaa tagtcaagag gctggctgga gagtcatcag 2820
tacattggtt tgcagaaatc ttttacaggc tacattttgg aatttttttt tttttagtaa 2880
gtgatcaaat ttggtgggaa gtaattcgag tgtattcgat tgtattgtcg tcctcgttat 2940
cattgtcaaa catgttatag acggcagttg gcactggggc tgctaatctc tgggtgtagt 3000
ctctgaaact gtagctccag tgaggtggtg tgaaaggtta gcaaagccac catctgctgg 3060
tgctccagcc aaggtgcctc ttagccactg aattgctatg ttatcctttc tcttgtaaca 3120
aacccacccc agagataaag cctttaatca acccaagaaa ctcctgggct aagtatctga 3180
cagtctcaca tctcaacagt gtgaattaag tgtccatagc atcagctcag gaggacactc 3240
tgggagagtg ctgacaaaaa agggttatta atactgacct actacttcaa gggcagttct 3300
gaggtgatta gagctttttt taaaaaccaa gtatttgggg atcctcagca gaggtattca 3360
tacagactcc caaagaacta tatatgttcc tgagaccatc gtttagtcta cattgctctt 3420
cccagagact gacagatatg accagtcaaa gtgcaagact acctacccac tgccatgaaa 3480
accattgcag gaaacctttc ccttcctgaa tgagattttt tttttccctt tttatgtggg 3540
gtaattattt gtgacccaag tgtaatttgg atgatttcca ttaatatcaa ctcttgaagc 3600
ctacttgtac tgattgagat tgtatttgtt cctaataaaa gtggatctgg ttgtactgtc 3660

<210> 222
<211> 5383
<212> DNA
<213> M. musculus

<220>
<221> CDS
<222> (862)...(1929)
<223> Antisense Oligonucleotide

<400> 222
tcccagtctc ccggggtttc tctttgctgg tgcctggaag tgggggtaga tgtgaagtta 60
gaccgagttg tgagtggcgg tagccagtgt cttcctcact tctttcgatg cgatttcccc 120
agtgaaccat ttgctaagcg ccagaccaaa gtcctaggct tgcacacaat tcctacttgg 180
aatcacgtta tcctgctctt aaagaaaagt cacccatcag cccacagcaa agaggataag 240
gagaaaaaga ggggaggaga gacggagaag ctagaggcag agggaacagc agattgcgcc 300
tagccaatgg aaaaggcagg acaaggtggc accaaattct ctttggccaa tgacaagacg 360
ggcttcacag gaggcacatt agcatttatc cccaggcagg gggttggagc agcgcgccct 420

```
gttgatgcct tcagcatccc ggcgcctcca aggtctactc tggaatctac ttggctttct 480
ttcccgttct tggtcccgcc ctctctctct ccctccctcc ctccctccct tcctccctcc 540
ctccctccct ccctccctcc ctcacctcca cgcctggctt ccttggctag ctatctctgc 600
gctctttacc ctttgctggc agccgataaa agggggctga ggaaatactg aacacggtca 660
tcccatcgcc tgctctaccc tttaaaatcc cagcccagga gatctgtgca cagccagacc 720
gggctgaaca cccatcccga gagtcaggag ggcaggtttc caagcgcagt tccgccactc 780
gcctacacca acgggctccg gaaccgaagt ccacgctcga tctcagcact gggaaagtga 840
ggcgagcaac tgactatcat c atg ccg gcc cac atg ctc caa gag atc tcc   891
                       Met Pro Ala His Met Leu Gln Glu Ile Ser
                        1               5                  10

agt tct tac acg acc acc acc acc atc act gca cct ccc tcc gga aat   939
Ser Ser Tyr Thr Thr Thr Thr Thr Ile Thr Ala Pro Pro Ser Gly Asn
                15                  20                  25

gaa cga gag aag gtg aag aca gtg ccc ctc cac ctg gaa gaa gac atc   987
Glu Arg Glu Lys Val Lys Thr Val Pro Leu His Leu Glu Glu Asp Ile
            30                  35                  40

cgt cct gaa atg aaa gaa gat att cac gac ccc acc tat cag gat gag   1035
Arg Pro Glu Met Lys Glu Asp Ile His Asp Pro Thr Tyr Gln Asp Glu
        45                  50                  55

gag gga ccc ccg ccc aag ctg gag tac gtc tgg agg aac atc att ctc   1083
Glu Gly Pro Pro Pro Lys Leu Glu Tyr Val Trp Arg Asn Ile Ile Leu
    60                  65                  70

atg gtc ctg ctg cac ttg gga ggc ctg tac ggg atc ata ctg gtt ccc   1131
Met Val Leu Leu His Leu Gly Gly Leu Tyr Gly Ile Ile Leu Val Pro
75                  80                  85                  90

tcc tgc aag ctc tac act gcc ctc ttc ggg att ttc tac tac atg acc   1179
Ser Cys Lys Leu Tyr Thr Ala Leu Phe Gly Ile Phe Tyr Tyr Met Thr
                95                  100                 105

agc gct ctg ggc atc aca gcc ggg gct cat cgc ctc tgg agc cac aga   1227
Ser Ala Leu Gly Ile Thr Ala Gly Ala His Arg Leu Trp Ser His Arg
            110                 115                 120
```

```
act tac aag gct cgg ctg ccc ctg cgg atc ttc cta atc att gcc aac   1275
Thr Tyr Lys Ala Arg Leu Pro Leu Arg Ile Phe Leu Ile Ile Ala Asn
        125                 130                 135

acc atg gcg ttc caa aat gac gtg tac gac tgg gcc cga gat cac cgc   1323
Thr Met Ala Phe Gln Asn Asp Val Tyr Asp Trp Ala Arg Asp His Arg
    140                 145                 150

gcc cac cac aag ttc tca gaa aca cac gcc gac cct cac aat tcc cgc   1371
Ala His His Lys Phe Ser Glu Thr His Ala Asp Pro His Asn Ser Arg
155                 160                 165                 170

cgt ggc ttc ttc ttc tct cac gtg ggt tgg ctg ctt gtg cgc aaa cac   1419
Arg Gly Phe Phe Phe Ser His Val Gly Trp Leu Leu Val Arg Lys His
                175                 180                 185

ccg gct gtc aaa gag aag ggc gga aaa ctg gac atg tct gac ctg aaa   1467
Pro Ala Val Lys Glu Lys Gly Gly Lys Leu Asp Met Ser Asp Leu Lys
            190                 195                 200

gcc gag aag ctg gtg atg ttc cag agg agg tac tac aag ccc ggc ctc   1515
Ala Glu Lys Leu Val Met Phe Gln Arg Arg Tyr Tyr Lys Pro Gly Leu
        205                 210                 215

ctg ctg atg tgc ttc atc ctg ccc acg ctg gtg ccc tgg tac tgc tgg   1563
Leu Leu Met Cys Phe Ile Leu Pro Thr Leu Val Pro Trp Tyr Cys Trp
    220                 225                 230

ggc gag act ttt gta aac agc ctg ttc gtt agc acc ttc ttg cga tac   1611
Gly Glu Thr Phe Val Asn Ser Leu Phe Val Ser Thr Phe Leu Arg Tyr
235                 240                 245                 250

act ctg gtg ctc aac gcc acc tgg ctg gtg aac agt gcc gcg cat ctc   1659
Thr Leu Val Leu Asn Ala Thr Trp Leu Val Asn Ser Ala Ala His Leu
                255                 260                 265

tat gga tat cgc ccc tac gac aag aac att caa tcc cgg gag aat atc   1707
Tyr Gly Tyr Arg Pro Tyr Asp Lys Asn Ile Gln Ser Arg Glu Asn Ile
            270                 275                 280
```

```
ctg gtt tcc ctg ggt gcc gtg ggc gag ggc ttc cac aac tac cac cac   1755
Leu Val Ser Leu Gly Ala Val Gly Glu Gly Phe His Asn Tyr His His
        285                 290                 295

acc ttc ccc ttc gac tac tct gcc agt gag tac cgc tgg cac atc aac   1803
Thr Phe Pro Phe Asp Tyr Ser Ala Ser Glu Tyr Arg Trp His Ile Asn
    300                 305                 310

ttc acc acg ttc ttc atc gac tgc atg gct gcc ctg ggc ctg gct tac   1851
Phe Thr Thr Phe Phe Ile Asp Cys Met Ala Ala Leu Gly Leu Ala Tyr
315                 320                 325                 330

gac cgg aag aaa gtt tct aag gct act gtc tta gcc agg att aag aga   1899
Asp Arg Lys Lys Val Ser Lys Ala Thr Val Leu Ala Arg Ile Lys Arg
                335                 340                 345

act gga gac ggg agt cac aag agt agc tga gctttgggct tctgagttcc     1949
Thr Gly Asp Gly Ser His Lys Ser Ser  *
            350                 355

tgtttcaaac gttttctggc agagatttaa tattctgttg attaactaac aactggatat 2009
tgctatcggg gtgttaatga tgcatttaac ctattccggt acagtattct tataaaatga 2069
gaaagctttg atcacgtttt gaggtaataa atattttatt tagctaggat taaccatgcc 2129
acaagacatt atatatttct aagcacacat gataaatgca tatacaattt tgcacaacag 2189
ctttaaataa taacaataaa tttgaacatt ctatacagag aggatcaaag ccaaggaaca 2249
tgctgttttg atgctagggt gagcatggtg ctcagtccct gtttgtttgc atggtgtcca 2309
gctttgtttc ttctctgtca tcaccacctt caggcaaata gttgaccaac cactggcctg 2369
tgtctgtcca ccctccaaag cccaggccac ctttctgttt tctgaaatac tgatccttcc 2429
tcctgaatac atccctcctt gttcctagct tcaagactgc tgcctcaaat agggatagag 2489
caagtccccg ctgcaggttg tgctagatgg gatggagaaa ttatcttcat ttgatacaga 2549
gcaagtagat tgtctcgaga gaaaagttag catgcgtggt atgatttgta agtaaagatg 2609
gaagagagag agagagagag agagagagag agagagagag agagagaggt agccatatct 2669
aacagcctac ttaccaaaga ccccaggcct ctctgcttgg catgcctcct ttctgtccat 2729
cctctgaacc ccagagatta gtgagatttg aataattaaa tcattttcag agtgaagggg 2789
gttaatgcag ggtctgtgct aggggagggt tttagctttt ggtaactgaa gatttttca 2849
tggaaaaagt cttcgtgttc aatgtgccta gaactgataa ctaaacagct gacatttgtc 2909
ggggacagat atggtgtgaa actatgaaaa tataagcaaa atcttcactt ggaacatgaa 2969
actatttcac ttagaaaata atcgaaggac ccgaggtgtt gcctgggttg ccagtttctt 3029
```

tcgtggctgg gcaggaacta gtgaggttga ggggcagtgt ctgtaagtag ctgctaagag 3089
gtgcatttcc agatgaagcc cttggggaac atctgccagg gatccgcatg gtgttggctc 3149
catccattgc tttagtttcc tccttggatt gtgtagaaac ttggcttccc atggttttga 3209
accttccatg ccttctttgc tttgtggcca cccagcctgc ctagtgctgc ctaggaagct 3269
cttacccacc tgatttcttc tgacatttct ttctttggcc ttttttcttt tctccggaca 3329
tgcagctagt tgcctgagtg tatcaagagc acccaggact tgctgctgtc caggcctgtt 3389
cctcccccag tatccgtggg tgtggaagag ctgtgtagct tcaggaagca gagccaggtg 3449
ccacctttct gtggcttcca gatcctccct acctccaact catgtgcctc tgtcacagtg 3509
atttcaggaa agcttggtag accctctagc aacatctcgg ttcagaaagt ctctctggtt 3569
tgtgagttaa cagctcagct aagtgctgtt ttgtctcagt gagttaacca ctgaatgcga 3629
gggttggttg ttgatctgtc tcggtgtgtg tcggagtaga cagcatatgc acttctccct 3689
gtgcgctttg caaggtaatg tggctttggc tgatccatgc aggcaggtag tggtacagtg 3749
ctgctgaaag gaagaagttc cccattttat ctgttaaaac accagagaca tgggcaagtg 3809
ctaatggacc tcacttcagg aagagggtct gcttcctgaa gccagtgtgt gatgaaaagt 3869
gactgagacc tgatatctaa ggtgagacct gatacctaac actctgtcac acagtccagg 3929
gccaacagtg ctataggaaa gtctagaaga aaacatcaca tcagtatttt agaaccatca 3989
accatctctt gtccctatag cccaatccag aggcctggtt tttagaactg gctgtgtaag 4049
gtgccaaaca ctcagttcac ttgtagaatc agagcctttt ttccccccta tgttaattga 4109
acacgcgctc tgagctgttt tgttgaagta gaaaatctca tagaaaaatc actgtagatc 4169
tactgaccta tagccctctg gaaatgcctt tgagatggtt ttacttttct aggtcataga 4229
tgcctgatta taaagatgaa caataaaatc agctttcttt ctttctcttc tgatcttatt 4289
ccccagatct gattcaggcc atgttccaaa gcaaggctac attgaggtcc tggtgtcttt 4349
aagtaaagga catctttcag atcctctcaa agaaggattt ataacagttt ccagatgaat 4409
gtactaatag ctttgggtgc cttatctctt tcctaatctg tagtgcctgt gagctcagtc 4469
tcactccttc ccttagcccg gagacccctt agatcgagtg ggaatagtca agaggctggc 4529
tggagagtca tcagtacatt ggtttgcaga aatcttttac aggctacatt ttggaatttt 4589
ttttttttta gtaagtgatc aaatttggtg ggaagtaatt cgagtgtatt cgattgtatt 4649
gtcgtcctcg ttatcattgt caaacatgtt atagacggca gttggcactg gggctgctaa 4709
tctctgggtg tagtctctga aactgtagct ccagtgaggt ggtgtgaaag gttagcaaag 4769
ccaccatctg ctggtgctcc agccaaggtg cctcttagcc actgaattgc tatgttatcc 4829
tttctcttgt aacaaaccca ccccagagat aaagccttta atcaacccaa gaaactcctg 4889
ggctaagtat ctgacagtct cacatctcaa cagtgtgaat taagtgtcca tagcatcagc 4949
tcaggaggac actctgggag agtgctgaca aaaaagggtt attaatactg acctactact 5009
tcaagggcag ttctgaggtg attagagctt tttttaaaaa ccaagtattt ggggatcctc 5069
agcagaggta ttcatacaga ctcccaaaga actatatatg ttcctgagac catcgtttag 5129
tctacattgc tcttcccaga gactgacaga tatgaccagt caaagtgcaa gactacctac 5189
ccactgccat gaaaaccatt gcaggaaacc tttcccttcc tgaatgagat ttttttttc 5249
ccttttatg tggggtaatt atttgtgacc caagtgtaat ttggatgatt tccattaata 5309
tcaactcttg aagcctactt gtactgattg agattgtatt tgttcctaat aaaagtggat 5369

ctggttgtac tgtc 5383

<210> 223
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 223
agatctcttg gagcatgtgg 20

<210> 224
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 224
cttctctcgt tcatttccgg 20

<210> 225
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 225
cttctttcat ttcaggacgg 20

<210> 226
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 226
tccctcctca tcctgatagg 20

<210> 227
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 227
cctccagacg tactccagct 20

<210> 228
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 228
aggaccatga gaatgatgtt 20

<210> 229
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 229
acaggcctcc caagtgcagc 20

<210> 230
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 230
ggaaccagta tgatcccgta 20

<210> 231
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 231
agtagaaaat cccgaagagg 20

<210> 232
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 232
cggctgtgat gcccagagcg 20

<210> 233
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 233
gctccagagg cgatgagccc 20

<210> 234
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 234
cgagccttgt aagttctgtg 20

<210> 235
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 235
gcaatgatta ggaagatccg 20

<210> 236
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 236
tacacgtcat tttggaacgc 20

<210> 237
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 237
ggtgatctcg ggcccagtcg 20

<210> 238
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 238
cgtgtgtttc tgagaacttg 20

<210> 239
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 239
cggctttcag gtcagacatg 20

<210> 240
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 240
ctggaacatc accagcttct 20

<210> 241
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 241
agcacatcag caggaggccg 20

<210> 242
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 242
tgaagcacat cagcaggagg 20

<210> 243
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 243
gtctcgcccc agcagtacca 20

<210> 244

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 244
gcaccagagt gtatcgcaag 20

<210> 245
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 245
caccagccag gtggcgttga 20

<210> 246
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 246
tagagatgcg cggcactgtt 20

<210> 247
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 247
ttgaatgttc ttgtcgtagg 20

<210> 248
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 248
cctcgcccac ggcacccagg 20

<210> 249
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 249
gtagttgtgg aagccctcgc 20

<210> 250
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 250
gaaggtgtgg tggtagttgt 20

<210> 251
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 251
gcggtactca ctggcagagt 20

<210> 252
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 252
ggtgaagttg atgtgccagc 20

<210> 253
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 253
tcctggctaa gacagtagcc 20

<210> 254
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 254
cccgtctcca gttctcttaa 20

<210> 255
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 255
ttgtgactcc cgtctccagt 20

<210> 256
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 256
tcagctactc ttgtgactcc 20

<210> 257
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 257
acaccagaga catgggcaag t 21

<210> 258
<211> 22
<212> DNA

<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 258
catcacacac tggcttcagg aa 22

<210> 259
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Probe

<400> 259
ctgaagtgag gtccattag 19

<210> 260
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 260
gaaggtgaag gtcggagtc 19

<210> 261
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 261

gaagatggtg atgggatttc 20

<210> 262
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Probe

<400> 262
caagcttccc gttctcagcc 20

<210> 263
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 263
ggaagctcac ctcttggagc 20

<210> 264
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 264
ctgctcaccg aagagggcag 20

<210> 265
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 265
gtagtagaaa atccctgcaa 20

<210> 266
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 266
tcccttacct cctctggaac 20

<210> 267
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 267
tgacttaccc acggcaccca 20

<210> 268
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 268
gtggaagccc tcgcctgcaa 20

<210> 269
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 269
ctggctaccg ccactcacaa 20

<210> 270
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 270
aagcctagga ctttggtctg 20

<210> 271
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 271
gtgtgcaagc ctaggacttt 20

<210> 272
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 272
taggaattgt gtgcaagcct 20

<210> 273
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 273
atctgctgtt ccctctgcct 20

<210> 274
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 274
tccagagtag accttggagg 20

<210> 275
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 275
ctagccaagg aagccaggcg 20

<210> 276
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 276
gcagagatag ctagccaagg 20

<210> 277
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 277
ttttatcggc tgccagcaaa 20

<210> 278
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 278
ggatgaccgt gttcagtatt 20

<210> 279
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 279
tggctgtgca cagatctcct 20

<210> 280
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 280
tcagcccggt ctggctgtgc 20

<210> 281
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 281
gcgcttggaa acctgccctc 20

<210> 282
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 282
tgtaggcgag tggcggaact 20

<210> 283

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 283
gtggacttcg gttccggagc 20

<210> 284
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 284
ttgctcgcct cactttccca 20

<210> 285
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 285
gtgggccggc atgatgatag 20

<210> 286
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 286
gaactggaga tctcttggag 20

<210> 287
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 287
tagaaaatcc cgaagagggc 20

<210> 288
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 288
ggtcatgtag tagaaaatcc 20

<210> 289
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 289
gcgctggtca tgtagtagaa 20

<210> 290
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 290
ggattgaatg ttcttgtcgt 20

<210> 291
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 291
tcccgggatt gaatgttctt 20

<210> 292
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 292
gatattctcc cgggattgaa 20

<210> 293
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 293
gtagccttag aaactttctt 20

<210> 294
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 294
cccaaagctc agctactctt 20

<210> 295
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 295
aacaggaact cagaagccca 20

<210> 296
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 296
cagaatatta aatctctgcc 20

<210> 297
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 297
agttgttagt taatcaacag 20

<210> 298
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 298
aattgtatat gcatttatca 20

<210> 299
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 299
ctgtatagaa tgttcaaatt 20

<210> 300
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 300

acagcatgtt ccttggcttt 20

<210> 301
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 301
tagcatcaaa acagcatgtt 20

<210> 302
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 302
accatgctca ccctagcatc 20

<210> 303
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 303
aaggatcagt atttcagaaa 20

<210> 304
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 304
tctctcgaga caatctactt 20

<210> 305
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 305
cttcagttac caaaagctaa 20

<210> 306
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 306
aaatgtcagc tgtttagtta 20

<210> 307
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 307
ggcaacccag gcaacacctc 20

<210> 308
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 308
gccacgaaag aaactggcaa 20

<210> 309
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 309
atgttcccca agggcttcat 20

<210> 310
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 310
tccctggcag atgttcccca 20

<210> 311
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 311
ctggctctgc ttcctgaagc 20

<210> 312
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 312
gctgagctgt taactcacaa 20

<210> 313
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 313
cacacaccga gacagatcaa 20

<210> 314
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 314
caggaagcag accctcttcc 20

<210> 315
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 315
aatactgatg tgatgttttc 20

<210> 316
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 316
atggttctaa aatactgatg 20

<210> 317
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 317
actgagtgtt tggcacctta 20

<210> 318
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 318
ggctctgatt ctacaagtga 20

<210> 319
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 319
tcaacaaaac agctcagagc 20

<210> 320
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 320
gattttctac ttcaacaaaa 20

<210> 321
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 321
cttaaagaca ccaggacctc 20

<210> 322

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 322
catctggaaa ctgttataaa 20

<210> 323
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 323
ctaagggaag gagtgagact 20

<210> 324
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 324
ttacttccca ccaaatttga 20

<210> 325
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 325
tgacaatgat aacgaggacg 20

<210> 326
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 326
cagatggtgg ctttgctaac 20

<210> 327
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 327
ttgttacaag agaaaggata 20

<210> 328
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 328
tcagatactt agcccaggag 20

<210> 329
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 329
tgttgagatg tgagactgtc 20

<210> 330
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 330
cacctcagaa ctgcccttga 20

<210> 331
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 331
gctctaatca cctcagaact 20

<210> 332
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 332
ggagtctgta tgaatacctc 20

<210> 333
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 333
tctctgggaa gagcaatgta 20

<210> 334
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 334
gtaggtagtc ttgcactttg 20

<210> 335
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 335
aggaagggaa aggtttcctg 20

<210> 336
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 336
tacacttggg tcacaaataa 20

<210> 337
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 337
aatcatccaa attacacttg 20

<210> 338
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 338
cttcaagagt tgatattaat 20

<210> 339
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 339

atacaatctc aatcagtaca 20

<210> 340
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 340
cacttttatt aggaacaaat 20

<210> 341
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 341
ttccgccact cgcctaca 18

<210> 342
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Primer

<400> 342
ctttcccagt gctgagatcg a 21

<210> 343
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR Probe

<400> 343
caacgggctc cggaaccgaa 20

<210> 344
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 344
gcttgcagga gggaaccagt 20

<210> 345
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 345
ctaggacttt ggtctggcgc 20

<210> 346
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 346
gcgcaatctg ctgttccctc 20

<210> 347
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 347
agggcgcgct gctccaaccc 20

<210> 348
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 348
aagaaagcca agtagattcc 20

<210> 349
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 349
gtgcacagat ctcctgggct 20

<210> 350
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 350
ctgccctcct gactctcggg 20

<210> 351
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 351
agaactggag atctcttgga 20

<210> 352
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 352
cctcctcatc ctgataggtg 20

<210> 353
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 353
acgtactcca gcttgggcgg 20

<210> 354
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 354
atgttcctcc agacgtactc 20

<210> 355
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 355
gaatgatgtt cctccagacg 20

<210> 356
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 356
ccatgagaat gatgttcctc 20

<210> 357
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 357
tcccgtacag gcctcccaag 20

<210> 358
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 358
tgtagagctt gcaggaggga 20

<210> 359
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 359
gccatggtgt tggcaatgat 20

<210> 360
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 360
tctgagaact tgtggtgggc 20

<210> 361

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 361
gtgtttctga gaacttgtgg 20

<210> 362
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 362
ggcgtgtgtt tctgagaact 20

<210> 363
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 363
aattgtgagg gtcggcgtgt 20

<210> 364
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 364
ccacggcggg aattgtgagg 20

<210> 365
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 365
aagaagccac ggcgggaatt 20

<210> 366
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 366
agcagccaac ccacgtgaga 20

<210> 367
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 367
tgcgcacaag cagccaaccc 20

<210> 368
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 368
gtgtttgcgc acaagcagcc 20

<210> 369
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 369
acagccgggt gtttgcgcac 20

<210> 370
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 370
ctttgacagc cgggtgtttg 20

<210> 371
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 371
cttctctttg acagccgggt 20

<210> 372
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 372
ccgcccttct ctttgacagc 20

<210> 373
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 373
atgtccagtt ttccgccctt 20

<210> 374
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 374
cagacatgtc cagttttccg 20

<210> 375
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 375
caggtcagac atgtccagtt 20

<210> 376
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 376
gctttcaggt cagacatgtc 20

<210> 377
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 377
tctcggcttt caggtcagac 20

<210> 378
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 378

cagcttctcg gctttcaggt 20

<210> 379
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 379
atcaccagct tctcggcttt 20

<210> 380
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 380
ggaacatcac cagcttctcg 20

<210> 381
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 381
ctcctctgga acatcaccag 20

<210> 382
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 382
ttgtagtacc tcctctggaa 20

<210> 383
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 383
aggatgaagc acatcagcag 20

<210> 384
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 384
agcgtgggca ggatgaagca 20

<210> 385
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 385
gtaccagggc accagcgtgg 20

<210> 386
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 386
cagcagtacc agggcaccag 20

<210> 387
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 387
cgccccagca gtaccagggc 20

<210> 388
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 388
gaaggtgcta acgaacaggc 20

<210> 389
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 389
ctgttcacca gccaggtggc 20

<210> 390
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 390
gcggcactgt tcaccagcca 20

<210> 391
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 391
accaggatat tctcccggga 20

<210> 392
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 392
tggtagttgt ggaagccctc 20

<210> 393
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 393
tactcactgg cagagtagtc 20

<210> 394
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 394
agcggtactc actggcagag 20

<210> 395
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 395
gtgccagcgg tactcactgg 20

<210> 396
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Antisense Oligonucleotide

<400> 396
ttgatgtgcc agcggtactc 20

<210> 397
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 397
gtggtgaagt tgatgtgcca 20

<210> 398
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 398
aagaacgtgg tgaagttgat 20

<210> 399
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 399
cagtagcctt agaaactttc 20

<210> 400

<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 400
ccagttctct taatcctggc 20

<210> 401
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 401
ccgtctccag ttctcttaat 20

<210> 402
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 402
taacaccccg atagcaatat 20

<210> 403
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 403
gagggtggac agacacaggc 20

<210> 404
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 404
cttgaagcta ggaacaagga 20

<210> 405
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 405
tatggctacc tctctctctc 20

<210> 406
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 406
ttttcatagt ttcacaccat 20

<210> 407
<211> 20

<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 407
tattttctaa gtgaaatagt 20

<210> 408
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 408
taggcagcac taggcaggct 20

<210> 409
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 409
aggaacaggc ctggacagca 20

<210> 410
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 410
gagggctata ggtcagtaga 20

<210> 411
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 411
aagacaccag gacctcaatg 20

<210> 412
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 412
ccaatgtact gatgactctc 20

<210> 413
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 413
tcacaccacc tcactggagc 20

<210> 414
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 414
agtaggtcag tattaataac 20

<210> 415
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 415
atctcattca ggaagggaaa 20

<210> 416
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 416
aaattacact tgggtcacaa 20

<210> 417
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 417

caatctcaat cagtacaagt 20

<210> 418
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Antisense Oligonucleotide

<400> 418
ccttccctga aggttcctcc 20